

WHAT IS CLAIMED IS:

1. A recombinant expression cassette comprising a promoter that is functional in plants operably linked with a coding sequence having a stop codon, the coding sequence being operably linked with a non-plant 3' termination sequence, wherein the non-plant 3' termination sequence is heterologous to the coding sequence and comprises:

- i. a cleavage site including a nucleotide sequence YA defining a position of endonucleolytic cleavage and subsequent 3' polyadenylation;
- ii. a positioning element of 6 nucleotides located between 10 nucleotides and 40 nucleotides 5' of the cleavage site and with at least 4 out of 6 nucleotides being adenine;
- iii. an upstream element that
  - (a) is located between 1 nucleotide and 250 nucleotides 5' of the positioning element; and,
  - (b) comprises TAYRTA or two or more repeats of TA, TG, or TA and TG where the repeats are separated by 0 to 10 nucleotides;and is a nucleotide sequence having at least 60% sequence identity to a native fungal or native animal 3' termination sequence and less than 90% sequence identity to a native plant 3' termination sequence.

2. The recombinant expression cassette of claim 1, wherein the cleavage site is flanked by a pair of thymidine-rich regions, each thymidine-rich region:

- a. comprising at least 6 nucleotide pairs of at least 80% thymidine; and,
- b. being within about 50 nucleotides of the cleavage site.

3. The recombinant expression cassette of claim 1, wherein the promoter is a virus promoter.

4. The recombinant expression cassette of claim 1, wherein the 3' termination sequence has at least 70% sequence identity to one of the sequences selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, SEQ ID

NO:22, SEQ ID NO:23, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:29, SEQ ID NO:30, or SEQ ID NO:31.

5. An isolated 3' termination sequence that is
  - a. functional in plants;
  - b. able to be PCR-amplified by primers selectively hybridizing under stringent conditions to the same nucleotide sequence as one of the primer pairs selected from the group consisting of: SEQ ID NOs: 4 and 5, SEQ ID NOs: 6 and 7, SEQ ID NOs: 8 and 9, SEQ ID NOs: 10 and 11, SEQ ID NOs: 12 and 13, SEQ ID NOs: 14 and 15, SEQ ID NOs: 32 and 33, SEQ ID NOs: 34 and 35, SEQ ID NOs: 36 and 37, SEQ ID NOs: 38 and 39, SEQ ID NOs: 40 and 41, SEQ ID NOs: 42 and 43, SEQ ID NOs: 44 and 45, SEQ ID NOs: 46 and 47, SEQ ID NOs: 48 and 49, SEQ ID NOs: 50 and 51, SEQ ID NOs: 52 and 53, SEQ ID NOs: 54 and 55, SEQ ID NOs: 56 and 57, SEQ ID NOs: 58 and 59, and SEQ ID NOs: 60 and 61; and,
  - c. a nucleotide sequence having at least 60% sequence identity to a native fungal or native animal 3' termination sequence and less than 90% sequence identity to a native plant 3' termination sequence.
6. A method for isolating a recombinant protein, the method comprising:
  - a. obtaining a polynucleotide encoding the recombinant protein;
  - b. constructing a recombinant expression cassette comprising a promoter that is functional in plants operably linked with the polynucleotide of step a, the polynucleotide being operably linked with and heterologous to the non-plant 3' termination sequence of claim 1;
  - c. transfecting a plant cell with the recombinant expression cassette;
  - d. expressing the recombinant protein in the plant cell; and,
  - e. isolating the recombinant protein.
7. A method of identifying non-plant 3' termination sequences that are functional in plants, the method comprising:
  - a. obtaining a non-plant 3' termination sequence, wherein the non-plant 3' termination sequence comprises:
    - i. a cleavage site comprising a nucleotide sequence YA defining a position of endonucleolytic cleavage and subsequent 3' polyadenylation;

- ii. a positioning element of 6 nucleotides located between 10 nucleotides and 40 nucleotides 5' of the cleavage site and with at least 4 out of 6 nucleotides being adenine;
    - iii. an upstream element that
      - (a) is located between 1 nucleotide and 250 nucleotides 5' of the positioning element; and,
      - (b) comprises TAYRTA or two or more repeats of TA, TG, or TA and TG where the repeats are separated by 0 to 10 nucleotides;
  - and is a nucleotide sequence having at least 60% sequence identity to a native fungal or native animal 3' termination sequence and less than 90% sequence identity to a native plant 3' termination sequence;
  - b. constructing an expression cassette comprising a plant promoter operably linked with a polynucleotide encoding a selectable trait, the polynucleotide operably linked with the non-plant 3' termination sequence that is heterologous to the polynucleotide; and,
  - c. detecting the selectable trait.
- 8. A method for making a transgenic plant, the method comprising:
  - a. obtaining a polynucleotide encoding a genetic trait to be expressed;
  - b. constructing a recombinant expression cassette comprising a promoter that is functional in plants and operably linked with the polynucleotide of step a, the polynucleotide of step a in turn operably linked with a non-plant 3' termination sequence, wherein the non-plant 3' termination sequence is heterologous to the polynucleotide of step a and comprises:
    - i. a cleavage site comprising a nucleotide sequence YA defining a position of endonucleolytic cleavage and subsequent 3' polyadenylation;
    - ii. a positioning element of 6 nucleotides located between 10 nucleotides and 40 nucleotides 5' of the cleavage site and with at least 4 out of 6 nucleotides being adenine;
    - iii. an upstream element that
      - (a) is located between 1 nucleotide and 250 nucleotides 5' of the positioning element; and,

(b) comprises TAYRTA or two or more repeats of TA, TG, or TA and TG where the repeats are separated by 0 to 10 nucleotides;

and is a nucleotide sequence having at least 60% sequence identity to a native fungal or native animal 3' termination sequence and less than 90% sequence identity to a native plant 3' termination sequence;

c. transfecting a plant cell with the recombinant expression cassette; and,

d. culturing the transfected plant cell into a viable plant.

9. A recombinant plant cell comprising the expression cassette of claim 1.

10. The recombinant expression cassette of claim 1, wherein the non-plant 3' termination sequence has at least 70% sequence identity to a native fungal or native animal 3' termination sequence and less than 90% sequence identity to a native plant 3' termination sequence.

11. The recombinant expression cassette of claim 1, wherein the non-plant 3' termination sequence has at least 80% sequence identity to a native fungal or native animal 3' termination sequence and less than 90% sequence identity to a native plant 3' termination sequence.

12. The recombinant expression cassette of claim 1, wherein the non-plant 3' termination sequence has at least 90% sequence identity to a native fungal or native animal 3' termination sequence and less than 90% sequence identity to a native plant 3' termination sequence.

13. The recombinant expression cassette of claim 1, wherein the non-plant 3' termination sequence is identical to a native fungal or native animal 3' termination sequence.

14. The isolated 3' termination sequence of claim 5, wherein the nucleotide sequence has at least 70% sequence identity to a native fungal or native animal 3' termination sequence and less than 90% sequence identity to a native plant 3' termination sequence.

15. The isolated 3' termination sequence of claim 5, wherein the nucleotide sequence has at least 80% sequence identity to a native fungal or native animal 3'

termination sequence and less than 90% sequence identity to a native plant 3' termination sequence.

16. The isolated 3' termination sequence of claim 5, wherein the nucleotide sequence has at least 90% sequence identity to a native fungal or native animal 3' termination sequence and less than 90% sequence identity to a native plant 3' termination sequence.

17. The isolated 3' termination sequence of claim 5, wherein the nucleotide sequence is identical to a native fungal or native animal 3' termination sequence and less than 90% sequence identity to a native plant 3' termination sequence.